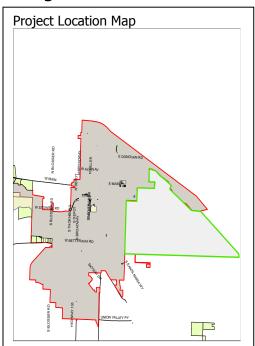
CENTRAL COAST IRRIGATION AND NUTRIENT MANAGEMENT (INM) PROGRAM, SANTA MARIA WATERSHED – Agreement No. 14-475-553

Proposition 84 Agricultural Water Quality Grant Program

Santa Maria, California Annual Update Summary 2017

Background



This project is in the county of Santa Barbara and the City of Santa Maria. The project is in the Santa Maria Valley watershed. The watershed is quite large, and is impacted by nitrate. Historically uses for water within watershed include municipal drinking water and agriculture. Over a century of agricultural use has resulted in a groundwater with nitrate levels exceeding drinking water standards in several locations. The City of Santa Maria Utilities Department addresses this issue in part by blending its water supplies. A groundwater assessment completed in 2012 determined the groundwater basin is balanced in salts, but nitrate continues to build up. The purpose of this project is to convert nitrate from agricultural tailwater back to nitrogen gas. If nitrate from agricultural tailwater can be removed from both the surface water and groundwater, surface water will a healthier ecosystem with more balanced pH and dissolved oxygen and the groundwater supply will be more suitable for drinking.



Project Description

This project involves the installation of a passive woodchip biofilter at the end of an agricultural runoff channel. Approximately 5700 acres of irrigated agriculture discharge into this channel. Prior to the installation this project, water from the channel dumped into a large water body in a city park, named Jim May Park. Water from the water body overflowed into the Santa Maria River. Once this project is constructed, water will be intercepted from Bradley channel and pumped into the head of the woodchip biofilter. As the water travels through the biofilter, a biological process will convert the ammonia and nitrate into nitrogen gas. Once the water leaves the biofilter, it will dump back into the water body at Jim May Park.

When insufficient flow is available from the channel, a nearby shallow groundwater well will supply additional flow

The project will address the nitrate problem by providing a mechanism for nitrate to be removed from the agricultural tailwater. Without this project, the nitrate either soaks into the

ground, becoming part of the water supply, or enters surface waters where it encourages algal growth and wide shifts in pH and dissolved oxygen.

The tasks associated with this project include design, construction, monitoring, and outreach to the local community.

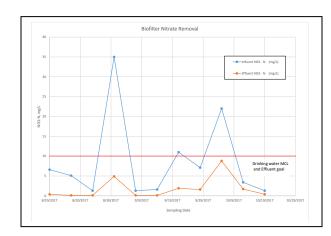
Project Status



In 2017, construction of the project was completed. Startup of the biofilter was challenging, but after a few modifications to improve performance, the biofilter started operating consistently. All elements were completed to meet the grant deadline of October 31, 2017. However, optimization and data collection will continue into the future.

In addition, city staff provided numerous methods of outreach to share the project. Such outreach activities included construction of a permanent sign, letters to upstream growers, and presentations at Rotary, strawberry Field Day, Santa Barbara Water Purveyors Meeting, just to name a few.

Project Assessment and Evaluation



The goal of this project is to remove nitrate from agricultural tailwater to a level below the drinking water maximum contaminant level of 10 mg/L nitrate as nitrogen. Data collected between August and October 2017 demonstrate success at meeting this goal.